

T20D02 – 20.4 HL Organic Condensation Reactions

Name

1. 20.4.1 Describe, using equations, the reactions of alcohols with carboxylic acids to form esters, and state the uses of esters. (2)
 - a. Provide the general equation for esterification AND the equation for the esterification of ethanoic acid and ethanol:

 - b. What distinctive characteristic is true of esters?

 - c. Draw the structure of a couple benzene containing esters:

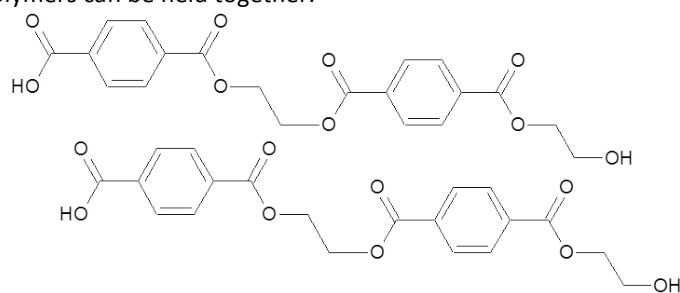
2. 20.4.2 Describe, using equations, the reactions of amines with carboxylic acids. (2)
 - a. Provide the general equation for the reaction between an amine and a carboxylic acid:

 - b. Amino acids can be added together through a **peptide bond**, the two amino acids of Alanine and Glycine can be added in two different ways, demonstrate each:

3. 20.4.3 Deduce the structures of the polymers formed in the reactions of alcohols with carboxylic acids. (3)
 - a. Polyesters can be formed when multiple hydroxides are present, provide an example:

 - b. Further polymerization can continue, explain why this can continue to happen:

- c. Show how these polymers can be held together:

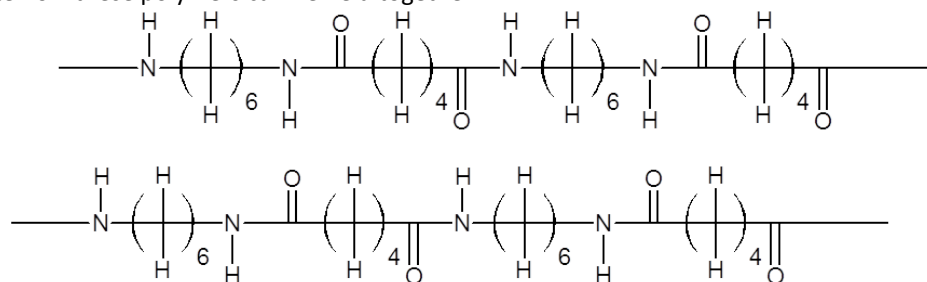


4. 20.4.4 Deduce the structures of the polymers formed in the reactions of amines with carboxylic acids. (3)

- a. Illustrate the production of nylon:

- b. What uses does nylon have in industry?

- c. Illustrate how these polymers can be held together:



- d. What is Kevlar and what aspect of its structure is responsible for the characteristic properties?

5. 20.4.5 Outline the economic importance of condensation reactions. (2)